

WHAT I CLAIM IS:

1. A tip portion for use in a replaceable tooth arrangement, said tip portion comprising a tip body portion and a tooth element, the tip body portion being configured to interact with a complementary base portion.
2. A tip portion as claimed in claim 1 in which said complementary base portion with which the tip portion interacts comprises a second tip portion.
3. A tip portion as claimed in claim 2 in which both tip portions are of substantially identical tip body portion design.
4. A tip portion as claimed in claim 1 in which the complementary base portion comprises a base element with a body portion adapted to interact with securing means for its attachment to a device in which the tooth is to be used.
5. A tip portion as claimed in any one of the preceding claims in which the tip portion is for use in a grinding or chipping disc.
6. A tip portion as claimed in claim 5 in which said disc comprises multiple sections, and the tip portion is for use in one of said section.
7. A tip portion as claimed in any one of the preceding claims in which the tip body portion is substantially circular in cross-section.
8. A tip portion as claimed in claim 7 in which the tip body portion is tapered, such that the cross-section diameter changes along the length of the tip body portion.
9. A tip portion as claimed in claim 8 in which the tip body portion is tapered such that its cross-sectional diameter decreases towards the end distal to the tooth element.
10. A tip portion as claimed in any one of claims 7 through 9 which is keyed or configured to be inserted into a disc, or section thereof, in a preferred rotational orientation.
11. A tip portion as claimed in any one of claims 1 through 6 in which the tip body portion is substantially polygonal along at least part of its length.

12. A tip portion as claimed in any one of the preceding claims in which the bottom face of the tip body portion, distal to the end with the tooth element, is tapered.
13. A tip portion as claimed in claim 12 in which the angle of tapering is within the inclusive range 15° - 75° relative to the longitudinal axis of the tip body portion.
14. A tip portion as claimed in claim 12 in which the angle of tapering is within the inclusive range 30° - 60° relative to the longitudinal axis of the tip body portion.
15. A tip portion as claimed in any one of the preceding claims which includes means for a connection element to pass therethrough to said complementary base portion.
16. A tip portion as claimed in claim 15 in which said means comprises a longitudinal aperture passing through the tip body portion.
17. A tip portion as claimed in either claim 15 or claim 16 in which the connection element comprises a bolt.
18. A tip portion as claimed in any one of claims 15 through 17 in which there is included a wedge keeper through which said connection element also passes.
19. A tip portion as claimed in claim 18 in which the connection element comprises a bolt, and the wedge keeper sits between the head of, or nut associated with, said bolt and the tip body portion.
20. A tip portion as claimed in either claim 18 or claim 19 in which at least part of the wedge keeper contacting the tip body portion is tapered relative to the longitudinal axis of the tip body portion, and wherein the tip body portion includes a removed portion for accommodating the wedge keeper and wherein said removed portion has faces, which contact the wedge keeper, which are tapered at substantially the same angle as the wedge keeper.
21. A tip portion as claimed in claim 20 in which the relationship between the wedge keeper and tip body portion is such that if the wedge keeper is moved in a direction towards the end of the tip body portion distal the tooth element there is also a resultant outward component, perpendicular to the longitudinal axis of the tip body portion, in its resulting movement.

22. A tip portion as claimed in any one of the preceding claims in which the tooth element is integrally formed with the tip body portion.
23. A tip portion as claimed in claim 22 in which the tooth element has been subjected to a hardening process.
24. A tip portion as claimed in claim in any one of claims 1 through 22 in which the tooth element has been coated with a hardened or abrasive material.
25. A tip portion as claimed in any one of claims 1 through 21 in which the tooth element comprises a material selected from the group comprising: hardened steels, tungsten carbides, ceramic materials, materials with embedded particles of diamond, boron nitride, composite materials including a hard substance.
26. A tip portion as claimed in any one of the preceding claims in which the tooth element is substantially chisel like in appearance.
27. A tip portion for use in a replaceable tooth arrangement, said tip portion comprising a tip body portion and a tooth element, the tip body portion being configured to interact with a complementary base portion,
the tip body portion including a longitudinal axis allowing a longitudinally directed connection element to pass through for connection to said base portion;
the bottom end of the tip body portion being tapered, such that when said connection element is tightened contacting tip and base portions attempt to move in a direction with both a longitudinal and outward, perpendicular to the longitudinal, component;
said outward component being such to tighten the tip and base portions against the walls of an aperture if said tip and base portions are inserted into same.
28. A complementary base portion for use with a tip portion as claimed in any one of claims 1 through 27, said complementary base portion comprising a base body portion whose upper contacting face, for contacting said tip portion, is contoured to be complementary to same.
29. A complementary base portion as claimed in claim 28 in which the cross-sectional configuration of the base body portion is equivalent to that of said tip portion.

30. A complementary base portion as claimed in either claim 28 or claim 29 in which there is provided a longitudinal aperture in the base body portion for accepting a connection element for connecting the base and tip portions together.
31. A complementary base portion as claimed in claim 30 in which the connection element is a bolt, and at least part of said longitudinal aperture is threaded to allow the connection of the bolt.
32. A complementary base portion as claimed in claim 30 in which there is provided a locating pin passing through an aperture in said base body portion which intersects with said longitudinal aperture, said locating pin including a threaded aperture for the connection of a connection element comprising a bolt.
33. A replaceable tooth arrangement comprising a tip portion as claimed in any one of claims 1 through 27 in combination with a complementary base portion comprising either another tip portion, or a base portion as claimed in any one of claims 28 through 32.
34. A replaceable tooth arrangement as claimed in claim 33 which includes a connection element for connecting the tip portion and complementary base portion.
35. A replaceable tooth arrangement as claimed in claim 34 in which the connection element is a bolt.
36. A replaceable tooth arrangement as claimed in either claim 34 or claim 35 characterised such that tightening the connection element moves contacting tip and complementary base portions in a direction having both a longitudinal and outward, perpendicular to the longitudinal, component.
37. A replaceable tooth arrangement as claimed in claim 36 in which said outward component is such that, when the tooth arrangement is inserted into an accommodating aperture, said outward component tightens the tip and base portions against the walls of said accommodating aperture.
38. A grinding disc which includes at least one replaceable tooth arrangement as claimed in any one of claims 33 through 37.

39. A grinding disc in which there is present at least one tip portion, as claimed in any one of claims 1 through 27.
40. A section for a grinding disc which includes at least one replaceable tooth arrangement as claimed in any one of claims 33 through 37.
41. A section for a grinding disc in which there is present at least one tip portion, as claimed in any one of claims 1 through 27.